



Federal Incentives for Developing Landfill Gas Energy Projects

Communities, landfill owners and operators, and state officials throughout the United States have learned that landfill gas is an important local and regional resource for generating renewable energy, and approximately 500 landfill gas energy projects are now operational across the United States. While landfill gas recovery offers significant environmental, energy, and economic benefits to the public and private sectors, financing for landfill gas energy projects remains a potential barrier to project development. The U.S. Environmental Protection Agency's Landfill Methane Outreach Program (LMOP) has developed this document to provide examples of the federal incentives that can be leveraged to reduce financial hurdles to landfill gas energy project development. Among other things, it includes a summary of the key provisions of the American Recovery and Reinvestment Act (ARRA) of 2009, enacted in February 2009, that are most likely to support landfill gas energy project development. In addition to the incentives summarized in this document, additional summaries of federal, state, and private financial incentives are available in LMOP's Funding Landfill Gas Energy Projects: State, Federal, and Foundation Resources, which is available at www.epa.gov/lmop/res/guide.

The incentives summarized in this document are presented based on the federal agency responsible for managing the financial incentive.

Department of the Treasury

Renewable Electricity Production Tax Credit (PTC)

The renewable electricity PTC is a per kilowatt-hour (kWh) federal tax credit included under Section 45 of the U.S. tax code for electricity generated by qualified energy resources. The PTC provides a corporate tax credit of 1.1 cents/kWh for landfill gas, open-loop biomass, municipal solid waste resources, qualified hydropower, and marine and hydrokinetic (150 kW or larger). Electricity from wind, closed-loop biomass, and geothermal resources receive 2.1 cents/kWh. Projects that receive other government grants or subsidies receive a discounted tax credit.

Initially enacted as part of the Energy Policy Act of 1992, the credit has expired and been renewed on a number of occasions, most recently with the passage of the ARRA. The 2009 legislation extended the in-service deadlines for qualifying renewable technologies. For landfill gas energy projects, the placed-in-service date is December 31, 2013. This requirement has generally been interpreted to mean that, by this date, the facility must have generators installed and working or be in a condition that is ready to generate electricity. The credit can be claimed, however, only when electricity is produced and

Lawrence Berkeley National Laboratory and National Renewable Energy Laboratory have released an analysis of these incentives in a report titled *PTC, ITC, or Cash Grant? An Analysis of the Choice Facing Renewable Power Projects in the U.S.* The report is available at <http://eetd.lbl.gov/EA/EMP/reports/lbnl-1642e.pdf>.



sold to an unrelated third party. Landfill gas energy project owners can claim the PTC for the first 10 years of operation. There is no maximum limit for credits claimed through the PTC.

Business Energy Investment Tax Credit (ITC)

The ARRA modified Section 48 of the U.S. tax code to allow owners of PTC-eligible renewable projects, such as landfill gas energy projects, to make an irrevocable election to earn a one-time corporate ITC in lieu of claiming the PTC. The ITC is equal to 30 percent of the costs attributable to the facility, which typically excludes other project costs, such as transmission equipment or ancillary site improvements. The ITC does not impose the third party power sale requirement that the PTC does.

A taxpayer can receive only one of the incentives—the PTC, ITC, or renewable energy grant.

Section 1603 Cash Grant for Renewable Energy

The ARRA under Section 1603 creates a new grant program, to be administered by the U.S. Department of the Treasury, for taxpayers eligible for the Business Energy ITC. A facility owner can choose to receive a one-time grant equal to 30 percent of the construction and installation costs for the facility, as long as the facility is depreciable or amortizable. To be eligible, the facility must be placed in service in 2009 or 2010, or construction must begin in either of those years and be completed prior to the end of 2013. The ARRA established an October 1, 2011 application deadline for the grant. The Department of the Treasury posted a guidance document and link to the grant application at www.treas.gov/recovery/1603.shtml.

Clean Renewable Energy Bonds (CREBs)

The 2005 Energy Policy Act created CREBs within Section 54 of the U.S. tax code. Unlike traditional bonds that pay interest, tax credit bonds pay the bondholders by providing a credit against their federal income tax. In effect, CREBs provide interest-free financing for clean energy projects.

In 2008, the IRS awarded 45 applicants the authority to issue CREBs to support landfill gas energy projects.

In 2008, the Energy Improvement and Extension Act provided authority for the issuance of an additional \$800 million in “new” CREBs, and in 2009, the ARRA allocated an additional \$1.6 billion for CREBs. The 2008 legislation also extended the deadline by which bonds must be issued for previous allocations to December 31, 2009.

The types of projects for which bonds can be issued include renewable energy projects utilizing landfill gas, wind, biomass, geothermal, solar, municipal solid waste, small hydroelectric, marine, and hydrokinetic. The Internal Revenue Service (IRS) has determined that facilities “functionally related and subordinate” to the generation facility itself are also eligible for CREB financing. Examples of these auxiliary components include transmission lines and interconnection upgrades.



The Energy Improvement and Extension Act of 2008 directs the IRS to allocate the bonding authority equally among electric cooperatives, government entities, and public power producers. Other changes for "new" CREBs are as follows:

- The federal tax credit is reduced to 70 percent of the interest payment
- The bond holder can transfer the tax credit to another party
- Taxpayers can carry forward unused credits into future years
- Bond proceeds must be used within three years or a request for an extension must be made

Each year, the IRS solicits applications and releases guidance on its Web site (www.irs.gov) on how the program will operate (e.g., criteria for determining allocations).

Qualified Energy Conservation Bonds

The Energy Improvement and Extension Act of 2008 created a new funding mechanism similar to the CREB model in which a bondholder receives tax credits in lieu of interest. The act authorizes state, local, and tribal governments to issue energy conservation bonds to finance qualified projects. The 2008 legislation allows the IRS to distribute up to \$800 million in bond authorizations. In 2009, the ARRA provided an additional \$2.4 billion in bonding authority. The bond proceeds can be used to finance capital expenditures that achieve one of the following goals:

- Reduction of energy consumption by at least 20 percent
- Implementation of a green community program
- Electricity generation from renewable resources in rural areas

The IRS has issued a notice that contains more details about the bond program at www.irs.gov/pub/irs-drop/n-09-29.pdf.

Advanced Energy Manufacturing Tax Credit

The ARRA established the advanced energy manufacturing tax credit to encourage the development of a U.S.-based renewable energy manufacturing sector. The ARRA authorizes the Department of the Treasury to issue \$2.3 billion of credits under the program. In any taxable year, the investment tax credit is equal to 30 percent of the qualified investment required for an advanced energy project that establishes, re-equips, or expands a manufacturing facility that produces any of the following:

- Equipment and/or technologies used to produce energy from solar, wind, geothermal, or other renewable resources
- Fuel cells, microturbines, or energy-storage systems for use with electric or hybrid-electric motor vehicles
- Equipment used to refine or blend renewable fuels
- Equipment and/or technologies to produce energy-conservation technologies (including energy-conserving lighting technologies and smart grid technologies)



Manufacturing facilities that develop equipment for landfill gas energy projects can presumably qualify under the first bullet above. Qualified investments generally include personal tangible property that is depreciable and required for the production process. Other tangible property may be considered a qualified investment only if it is an essential part of the facility, excluding buildings and structural components.

To be eligible for the tax credit, a project must be certified by the Department of the Treasury. In determining which projects to certify, the ARRA directs the Department of the Treasury to consider those projects that most likely will:

- Be commercially viable
- Provide the greatest domestic job creation
- Provide the greatest net reduction of air pollution and/or greenhouse gases
- Have the greatest potential for technological innovation and commercial deployment
- Have the lowest levelized cost of generated (or stored) energy or the lowest levelized cost of reduction in energy consumption or greenhouse gas emissions
- Have the shortest project time from certification to completion

After certification is granted, the taxpayer has up to one year to provide additional evidence that the requirements of the certification have been met and three years to put the project in service.

The Department of the Treasury, in consultation with the Department of Energy (DOE), posted guidelines and the application for this tax credit at www.energy.gov/recovery/48C.htm.

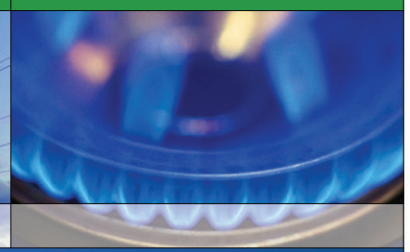
Department of Energy

Renewable Energy Production Incentive (REPI)

The REPI Program was created by the Energy Policy Act of 1992 and reauthorized by the Energy Policy Act of 2005 to extend through 2026. REPI provides financial incentives for renewable energy electricity produced and sold by qualified renewable energy generation facilities, which include not-for-profit electrical cooperatives, public utilities, state governments, U.S. territories, the District of Columbia, and Indian tribal governments. The facilities are eligible for annual incentive payments of approximately 2.1 cents/kWh for the first 10-year period of their operation, subject to the availability of annual appropriations in each federal fiscal year of operation. Qualifying renewable energy sources include:

- Landfill gas
- Solar
- Wind

Multiple landfill gas energy projects have received funding through REPI. In 2007, six projects in the state of Kentucky received more than \$370,000 in funding after generating nearly 95 million kWh of electricity. These projects include Green Valley Landfill, Laurel Ridge Landfill Inc., Pearl Hollow Landfill, and Pendleton County Landfill.



- Geothermal
- Biomass
- Livestock methane
- Ocean
- Fuel cells using hydrogen derived from eligible biomass facilities

To be eligible, qualified renewable energy facilities must be operational before October 1, 2016. Funding is subject to annual appropriation, and the program has historically been under-funded. During years in which there is a funding shortfall, legislation requires DOE to allocate 60 percent of REPI funds to solar, wind, ocean, geothermal, or closed-loop biomass technologies and the remainder to landfill gas, livestock methane, and open-loop biomass projects. If funds are not sufficient to make full payments to all qualifying facilities, payments are made to those facilities on a pro rata basis.

To assist DOE in its budget planning, DOE requests that the owner or operator of a qualified renewable energy facility provide notification at least six months in advance of electricity generation. To receive payment, qualified facility owners and operators submit information, such as monthly electricity generation, to DOE during the first quarter (i.e., October 1 through December 31) of the next fiscal year. More details about the application procedure are provided at www.eere.energy.gov/rep.

Energy Efficiency and Conservation Block Grant Program (EECBG)

The EECBG Program provides grants to local governments, tribal governments, states, and U.S. territories to reduce energy use and fossil fuel emissions, and to implement energy efficiency improvements. Recently, the ARRA appropriated \$3.2 billion for the EECBG Program for fiscal year 2009. Activities eligible for funding include:

DOE spoke about this grant program during EPA's Local Clean Energy Webcast held on March 5, 2009. A copy is posted at <http://www.epa.gov/cleanenergy/energy-programs/state-and-local/webcast.html>.

- Purchase and implementation of technologies to reduce, capture, and use methane and other greenhouse gases generated by landfills or similar sources
- Material conservation programs, including source reduction, recycling, and recycled content procurement programs that lead to increases in energy efficiency
- Renewable energy technologies for government buildings
- Any other appropriate activity that meets the purposes of the program and is approved by DOE

Of the \$3.2 billion appropriated in total program funds, \$2.8 billion is available under the formula authorized under the Energy Independence and Security Act of 2007. Funds are allocated accordingly:

- 28 percent to states (60 percent of which is redistributed to local governments)
- 68 percent to local governments



- 2 percent to Indian tribes
- 2 percent in competitive grants

All states are eligible to apply for direct formula grants and competitive grants from DOE. Depending on population, cities and counties are eligible for EECBG Program funds either directly from DOE or from the state in which they are located. For 2009, an additional \$400 million is available as competitive grants for any eligible entity.

The Weatherization and Intergovernmental Program in DOE's Office of Energy Efficiency and Renewable Energy administers the EECBG program. More information about the program is posted at www.eecbg.energy.gov.

State Energy Program (SEP)

SEP provides grants to states to address their energy priorities in the areas of energy efficiency and development of renewable energy technologies. The ARRA appropriated \$3.1 billion for the program for fiscal year 2009. In order for a state to be eligible for these funds, it must commit to all three of the following:

- Instituting policies at state-regulated utilities that support energy efficiency
- Adopting energy efficient building codes
- Prioritizing grants toward funding energy efficiency and renewable energy programs

States will have discretion over how the money is distributed. Local governments and others interested in developing landfill gas energy projects should contact their State Energy Office to learn more about their state's process for distributing grants. DOE has posted the list of State Energy Offices at http://apps1.eere.energy.gov/state_energy_program/seo_contacts.cfm.

The Weatherization and Intergovernmental Program in the DOE Office of Energy Efficiency and Renewable Energy manages SEP. More information about SEP can be viewed at http://apps1.eere.energy.gov/state_energy_program.

Loan Guarantees

Innovative Technology

The Energy Policy Act of 2005 authorized DOE to issue loan guarantees to eligible projects that avoid, reduce, or sequester air pollutants or anthropogenic emissions of greenhouse gases. The projects need to employ new or significantly improved technologies when compared to technologies in service in the United States at the time the guarantee is issued.

Under the most recent solicitation issued in July 2009, the minimum application fee was \$75,000, which indicates that the program is designed to support larger scale renewable energy and biofuel projects. DOE periodically publishes requests for applications for loan guarantees, which can target specific technologies or be general.



Rapid Deployment

The ARRA expanded the Innovative Technology loan guarantee program with \$6 billion for renewable energy systems, biofuel, and electric power transmission projects. "Renewable energy systems" include those that generate electricity or thermal energy (or manufacture component parts of such systems). Biofuel projects are limited to those that are likely to become commercial technologies and will produce transportation fuels that substantially reduce life-cycle greenhouse gas emissions compared to other transportation fuels. The 2009 funds are limited to projects that commence construction by September 30, 2011.

More information about DOE's loan guarantee program is available at www.lgprogram.energy.gov.

U.S. Department of Agriculture

High Energy Cost Grant

The U.S. Department of Agriculture (USDA) Rural Utilities Service (RUS) offers low-interest loans and grants to fund renewable energy development in rural areas of the country. Essentially, any type of renewable energy source is eligible, as well as the associated electrical distribution and/or transmission facilities required to interconnect the project. The project must serve either the consumers of an existing RUS system or other rural areas with populations less than 2,500 (if the project is served by an electric utility other than a RUS borrower). Although most applications submitted to date have come from rural electric cooperatives, the program is not restricted to this segment. A wide range of potential applicants are eligible. More information is available at www.usda.gov/rus/electric.

In May 2008, Steuben Rural Electric Cooperative in New York received a \$1 million high energy cost grant to construct a landfill gas energy project.

The High Energy Cost Grant Program provides financial assistance for the improvement of energy generation and transmission and distribution facilities serving eligible rural communities with home energy costs that are 275 percent higher than the national average. On-grid and off-grid renewable energy projects, such as landfill gas energy projects, are eligible. The number of grants awarded depends on the number of applications submitted, the amount of grant funds requested, the quality and competitiveness of applications submitted, and the availability of appropriated funds. The minimum and maximum amounts of a grant request that will be considered for funding are \$75,000 and \$5 million, respectively. USDA publishes a Notice of Funding Availability in the Federal Register to announce when applications are accepted.

EPA's Landfill Methane Outreach Program (LMOP) is a voluntary assistance and partnership program that promotes the use of landfill gas as a renewable energy resource. By preventing emissions of methane—a powerful greenhouse gas—through the development of landfill gas energy projects, LMOP helps businesses, states, and communities protect the environment and build a sustainable future. For more information about LMOP, visit www.epa.gov/lmop.